04-610

AMENDMENT 1

TO THE

AGREEMENT

BETWEEN

THE DEPARTMENT OF DEFENSE OF THE UNITED STATES OF AMERICA

AND

THE MINISTRY OF DEFENSE OF THE FEDERAL REPUBLIC OF GERMANY

CONCERNING

COOPERATIVE ENGINEERING AND MANUFACTURING DEVELOPMENT

OF THE

RAM BLOCK 1 UPGRADE TO THE MK-31 GUIDED MISSILE WEAPONS SYSTEM

(GMWS)

ARTICLE 1

INTRODUCTION

The Department of Defense of the United States of America and the Ministry of Defense of the Federal Republic of Germany, having entered into an Agreement Concerning Cooperative Engineering and Manufacturing Development of the RAM Block 1 Upgrade to the MK-31 Guided Missile Weapon System, which became effective on 27 March 1996; and

Desiring to amend this Agreement to include provisions for the joint development of Helicopter, Aircraft and Surface (HAS) Mode capability into the EMD Project;

Accordingly, the Parties have agreed as follows:

ARTICLE 2

AMENDMENT

The Agreement is hereby amended as follows:

1. Title page of Agreement, delete "Block I" and replace with "Block 1 and Block 1 HAS".

2. Throughout the entire Agreement, replace "Block I" and "Block I Upgrade" with "Block 1".

3. PREAMBLE. At the end of the last paragraph add "and". Before the sentence " Have agreed as follows:" add the following paragraph "Having evaluated the inherent capability of RAM Block 1 against helicopters, other aircraft and surface craft, recognize the benefits of continued cooperation in the Engineering and Manufacturing Development of RAM Block 1 by incorporating the RAM Block 1 HAS Upgrade into RAM Block 1. "

4. ARTICLE I, DEFINITIONS. Add the following definitions:

Block 1	The modification to the Block 0 Guided Missile Round Pack (GMRP) which allows for Infrared all-the way guidance mode to the seeker while maintaining original RF/IR capabilities; and the upgrade to the Guided Missile Launching System which adds the capability to fire Block 0 and Block 1 missiles

Block 1 HAS Upgrade	The modifications to the RAM Block 1 Guided Missile Weapons System (GMWS) which adds the capability to engage helicopter, fixed wing aircraft and small surface craft targets

Modify the definition of "EMD Project" as follows, delete "I Upgrade" and replace with "1 and Block 1 HAS Upgrade".

5. ARTICLE II, OBJECTIVE(S). Add the following paragraph, "2.2. A further objective of the EMD Project is to provide incremental improvements to the RAM Block 1 GMWS. Additional capabilities which take advantage of the reserve capacity of the Block 1 missile electronics will be added through upgrades to missile software. These new capabilities will allow for engagement of new targets such as helicopters, fixed wing aircraft, surface craft; and improved countermeasures. Upgrades to GMLS software and electronics are required to support these capabilities; reduce life-cycle cost; increase reliability and maintainability; and support combat system integration. These additional capabilities will be reflected in appropriate Block 1 HAS Upgrade increments of the specifications described in paragraph 2.1."

6. Article III (Scope of Work), delete paragraphs 3.1. and 3.2. and replace with:

"3.1. The overall work to be undertaken under this Agreement includes the following tasks to design, develop, test/qualify, and document RAM Guided Missile Round Pack (GMRP) Block 1 and Block 1 HAS Upgrade configurations and to modify the RAM Guided Missile Launching System (GMLS) to allow for Block 0, Block 1, and Block 1 HAS Upgrade missile firings.

3.1.1. Block 1 tasks include:

3.1.1.1. Definitize and agree to the RAM Weapon System Specifications 18925B and 18926B and RAM Interface Specification 19622B.

3.1.1.2. Manufacture, assemble and test eight Engineering Model (EM) guidance and control sections;

3.1.1.3. Flight test four of the Engineering Models (EMs) to demonstrate the Block 1 design and performance against aerial targets. Conduct hardware-in-the-loop (HWIL) simulation and missile captive carry testing;

3.1.1.4. Conduct functional design verification and performance prediction using digital HWIL simulations;

3.1.1.5. Design, develop and document the Block 1 missile software to the requirements of the specifications. Complete validation and verification of the missile software;

3.1.1.6. Identify and generate changes to all Block 0 GMRP retrofit drawings, specifications, interface control drawings, drawing trees and specification trees. Develop a Block 1 Level III technical data package (TDP);

3.1.1.7. Develop and modify tooling and test equipment sets for the Block 1 configuration. All tooling and test equipment will be designed to enable future production and modification of the 30 Block 1 LRIP missiles and associated launchers with minimum effort;

3.1.1.8. Fabricate and assemble 30 Block 1 Low Rate Initial Production (LRIP) Missiles in accordance with the development Technical Data Package (TDP);

3.1.1.9. Conduct testing utilizing Block 1 LRIP missiles to include: Contractor/Navy Testing (CNT), Developmental and Operational testing (DT/OT) and Technical Evaluation and Operational Evaluation (TECHEVAL/OPEVAL) testing. Gather and analyze test data;

3.1.1.10. Design, develop, document and integrate hardware and software modifications, as required, to the launcher to allow the firing of Block 0 and Block 1 missiles. Install two RAM Block 1 Launcher ORDALTs for DT/OT and TECHEVAL/OPEVAL testing;

3.1.1.11. Develop training plans and conduct training for DT/OT and TECHEVAL/OPEVAL testing;

3.1.1.12. Acquire and equip targets for DT/OT and TECHEVAL/OPEVAL testing;

3.1.1.13. Provide interim sparing plans, training hardware, OPEVAL spares and updates to the Block 0 Logistics Support Analysis Records (LSAR) that allows support of Block 1 with no degradation to the Reliability Maintainability and Availability (RM&A) achieved with Block 0;

3.1.1.14. Perform preliminary Block 1 missile production line set up tasks for the fabrication of 30 Block 1 LRIP missiles as outlined in paragraph 3.1.1.8.

3.1.2. Block 1 HAS Upgrade tasks include:

3.1.2.1. Definitize and agree to the appropriate Block 1 HAS Upgrade increments of the specifications described in paragraph 3.1.1.1.

3.1.2.2. Flight test 9 Block 1 HAS Upgrade missiles to demonstrate performance against prescribed targets and full system performance. Conduct HWIL simulation and missile captive carry testing. Flight testing includes CNT and requisite operational testing. Gather and analyze test data;

3.1.2.3. Design, develop and document the Block 1 HAS Upgrade missile software to the requirements of the Block 1 HAS Upgrade specifications as described in 3.1.2.1. Complete validation and verification of the missile software;

3.1.2.4. Identify and generate changes to all Block 1 GMWS retrofit drawings, specifications, interface control drawings, drawing trees and specification trees. Develop a TDP in sufficient detail to permit Block 1 HAS Upgrade production by German and U.S. RAM industries;

3.1.2.5. Develop and modify tooling and test equipment sets in order to support Block 1 HAS Upgrade testing;

3.1.2.6. Fabricate and assemble 6 Block 1 LRIP missiles in accordance with the development TDP. Upgrade 11 Block 1 missiles (5 from 1st LRIP lot, 6 from 2nd LRIP lot) to the Block 1 HAS Upgrade design;

3.1.2.7. Design, develop, document, fabricate and integrate Block 1 HAS Upgrade hardware and software modifications, as required, to the launcher to allow the firing of Block 0, Block 1 and Block 1 HAS Upgrade missiles. Install two RAM Block 1 EDM Launchers and modify them to incorporate necessary Block 1 HAS Upgrade capabilities for Block 1 HAS Upgrade testing;

3.1.2.8. Acquire and equip targets for prescribed Block 1 HAS Upgrade testing;

3.1.2.9. Perform system and interface testing at a German land based test facility.

3.2. The scope of the EMD Project effort includes development of computer software to be delivered under the EMD Project and required for operation, test, and logistics support during the development phase of the EMD Project."

7. ARTICLE IV, MANAGEMENT. Paragraph 4.3.2., after "…specification 19622B", add ",and the appropriate Block 1 HAS Upgrade increments of these specifications."

8. ARTICLE V, FINANCIAL PROVISIONS. Paragraph 5.1., delete "$190.86" from first sentence and replace with "$228.58".

9. ARTICLE V, FINANCIAL PROVISIONS. Paragraph 5.3., delete financial table and replace with the following:

DOD		FMOD	
Financial	= $128.58M	Financial	= 92.10 MDM ($67.73M)
Non-Financial	= $16.15M	Non-Financial	= 21.92 MDM ($16.12M)
TOTAL DOD COST CONTRIBUTION	= $144.73M	TOTAL FMOD COST CONTRIBUTION	= 114.02 MDM ($83.85M)

10. ARTICLE V, FINANCIAL PROVISIONS. Paragraph 5.3., third sentence, delete maximum German Contribution of "$10.3M" and replace with "$10.6M". Delete maximum US contribution of "$24.0M" and replace with "$30.4M".

11. ARTICLE IX, DISCLOSURE AND USE OF PROJECT INFORMATION. Paragraph 9.1.1., at the end of the last sentence, delete "." and add ",and the appropriate Block 1 HAS Upgrade increments of these specifications."

12. Delete Annex A and replace with:

"ANNEX A

FINANCIAL MATTERS

1. The cost ceiling of the RAM EMD Project is $228.58 million fiscal year 1994 dollars.

2. The financial and non-financial contributions required to support the EMD project shall be shared as follows:

TABLE A-1

TOTAL CONTRIBUTIONS BY FISCAL YEAR
(FY 1994 Dollars in Millions)

	FY94	FY95	FY96	FY97	FY98	FY99	FY00	FY01	TOTAL
Required	16.10	16.37	85.64	38.55	37.47	21.12	8.75	4.58	228.58
U.S DOD									
F	4.33	14.87	41.70	25.50	25.20	11.00	3.21	2.77	128.58
*NF	11.77	1.50	0.00	0.00	2.88	0.00	0.00	0.00	16.15
U.S. Totals	16.10	16.37	41.70	25.50	28.08	11.00	3.21	2.77	144.73
German FMOD									
F	0.00 (0.00)	0.00 (0.00)	44.797 MDM ($32.94M)	17.749 MDM ($13.05M)	12.765 MDM ($9.39M)	10.969MDM ($8.07M)	4.75 MDM ($3.49M)	1.07 MDM ($0.79M)	92.10 MDM ($67.73M)
**NF	0.00 (0.00)	0.00 (0.00)	14.960 MDM ($11.00M)	0.00 (0.00)	0.00 (0.00)	2.782 MDM ($2.05M)	2.782 MDM ($2.05M)	1.391MDM ($1.02M)	21.92 MDM ($16.12M)
German Totals	0.00 (0.00)	0.00 (0.00)	59.757 MDM ($43.94M)	17.749 MDM ($13.05M)	12.765 MDM ($9.39M)	13.751MDM ($10.12M)	7.532 MDM ($5.54M)	2.461MDM ($1.81M)	114.02MDM ($83.85M)

F = Financial Contributions
NF = Non-Financial Contributions

* The maximum U.S. NF contribution is $16.15M and consists of: twelve Block 0 Guidance sections to be used as Engineering Models, U.S. Contractor RAM Block 1 work performed October 93 to August 94, field activity support in FY98, and 6 RAM Block I LRIP missiles.

** The maximum GE NF contribution is $16.12M and consists of: 8 MM-38 missiles, launching equipment, captive carry trials, system and interface testing at a land based test facility, and associated support."

13. All other provisions of the Agreement remain unchanged.

ARTICLE III

ENTRY INTO FORCE

This Amendment shall enter into force upon signature by both Parties and shall remain in force as long as the Agreement it amends.

IN WITNESS WHEREOF, the undersigned, being duly authorized by their governments, have signed this Amendment.

DONE, in duplicate, in the English language only.

FOR THE DEPARTMENT OF DEFENSE OF THE UNITED STATES OF AMERICA

FOR THE MINISTRY OF DEFENSE OF THE FEDERAL REPUBLIC OF GERMANY

Signature

Signature

Paul A. Schneider

Petry

Name

Name

PDASN

Präsident BWB

Title

Title

21 October 1998

09. Oktober 1998

Date

Date

Location

Koblenz

Location